

WE CLAIM:

1. A process for the preparation of an alcohol composition comprising at least one primary mono-alcohol, at least 60% by weight of which consists of linear primary mono-alcohols containing at least 7 carbon atoms, said process comprising the steps of:

- (a) reacting carbon monoxide with hydrogen under Fischer-Tropsch reaction conditions in the presence of a Fischer-Tropsch catalyst comprising cobalt;
- (b) separating from the product of step (a) at least one hydrocarbon fraction comprising between 10 and 50% by weight of olefins containing 6 or more carbon atoms;
- (c) contacting at least one of the hydrocarbon fractions obtained in step (b) with carbon monoxide and hydrogen under hydroformylation conditions in the presence of a hydroformylation catalyst based on a source of cobalt and one or more alkyl phosphines thereby producing a hydroformylation product stream; and
- (d) recovering the alcohol composition from the hydroformylation product stream.

2. The process of claim 1 wherein step (a) comprises reacting carbon monoxide with hydrogen at a temperature in the range of from about 125 to about 350 °C and a pressure in the range from about 5 to about 150 bar abs. in the presence of a Fischer-Tropsch catalyst comprising cobalt on a carrier comprising titania.

3. The process of claim 1 wherein the separation in step (b) involves a distillation treatment.

4. The process of claim 1 wherein the hydrocarbon fraction in step (c) is a hydrocarbon stream comprising at least 30% by weight of C11 and C12 n-alkanes and from 15 to 50% by weight of linear C11 and C12 mono-olefins.

5. The process of claim 1 wherein the hydrocarbon fraction in step (c) is a hydrocarbon stream comprising at least 30% by weight of C13 and C14 n-alkanes and from 10 to 45% by weight of linear C13 and C14 mono-olefins.
6. The process of claim 2 wherein the hydrocarbon fraction in step (c) is a hydrocarbon stream comprising at least 30% by weight of C11 and C12 n-alkanes and from 15 to 50% by weight of linear C11 and C12 mono-olefins.
7. The process of claim 2 wherein the hydrocarbon fraction in step (c) is a hydrocarbon stream comprising at least 30% by weight of C13 and C14 n-alkanes and from 10 to 45% by weight of linear C13 and C14 mono-olefins.
8. The process of claim 1 wherein the hydrogen to carbon monoxide molar ratio in step (c) is in the range of from 1.0 to 5.0.
9. The process of claim 2 wherein the hydrogen to carbon monoxide molar ratio in step (c) is in the range of from 1.0 to 5.0.
10. The process of claim 3 wherein the hydrogen to carbon monoxide molar ratio in step (c) is in the range of from 1.0 to 5.0.
11. The process of claim 4 wherein the hydrogen to carbon monoxide molar ratio in step (c) is in the range of from 1.0 to 5.0.
12. The process of claim 5 wherein the hydrogen to carbon monoxide molar ratio in step (c) is in the range of from 1.0 to 5.0.
13. The process of claim 6 wherein the hydrogen to carbon monoxide molar ratio in step (c) is in the range of from 1.0 to 5.0.
14. The process of claim 7 wherein the hydrogen to carbon monoxide molar ratio in step (c) is in the range of from 1.0 to 5.0.

15. The process of claim 1 wherein the hydroformylation catalyst used in step (c) is based on a source of cobalt and a substituted or unsubstituted monophosphabicycloalkane ligand.
16. The process of claim 1 wherein step (d) comprises the steps of a first distillative treatment, saponification, water washing treatment and a second distillative treatment.
17. The process of claim 16 wherein step (d) additionally comprises a hydrofinishing treatment.
18. The process of claim 2 wherein step (d) comprises the steps of a first distillative treatment, saponification, water washing treatment and a second distillative treatment.
19. The process of claim 18 wherein step (d) additionally comprises a hydrofinishing treatment.
20. An alcohol composition comprising
- (a) 70 to 90% by weight of C12 and C13 linear primary mono-alcohols and
 - (b) 10 to 30% by weight of C12 and C13 iso-alcohols wherein the weight ratio C12 linear primary alcohol to C13 linear primary alcohol is in the range of from 0.5 to 2.0.
21. An alcohol composition comprising
- (a) 55 to 80% by weight of C14 and C15 linear primary mono-alcohols and
 - (b) 20 to 45% by weight of C14 and C15 iso-alcohols wherein the weight ratio C14 linear primary alcohol to C15 linear primary alcohol is in the range of from 1.0 to 3.0.